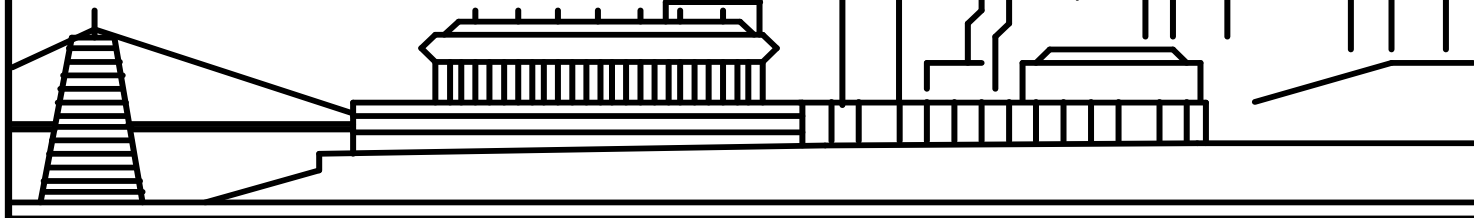




**INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.**



NOVEMBER/DECEMBER 1995

IEEE CINCINNATI SECTION NEWSLETTER

CHAIRMAN'S MESSAGE

by Steve Olenick

In this issue of the newsletter, you will find a ballot for our election for Member-At-Large.

Steve Yelton and Gary Webster provided a tour of Cincinnati Technical College on October 26. I was impressed by the quality of the facility. They are to be providing an outstanding service for the local bio-medical community. They are one of a handful of accredited facilities in the country offering a bio-medical curriculum. If you need to learn C or C++, consider CTC as an alternative.

If you have any suggestions for technical meetings, please contact me at 513-573-6555 or e-mail me at SOLENICK@CINELE.COM.

Until next time.

A MESSAGE FROM YOUR PACE CHAIRMAN

By Bill Lohner

"A Network of Professional Activities for Engineers"

This month's comments will be rather brief but hopefully helpful in some way. I've had some recent surgery and the medication sometimes obscures clear thinking or creativity. I would like to quote from some recent articles from some of the IEEE publications I receive as PACE chairman.

From the IEEE-USA Legislative Report, September 22, 1995, Vol. XXI, No. 4, a quote from "Congress Examines New Immigration Policy." IEEE-USA will be testifying at these hearings: "A labor representative told the subcommittee that the AFL/CIO supports the draft bill's proposal to lower the work-based immigration limit to 75,000. According to Rudy Oswald, director of the union's economic research department, 'Most labor shortage claims, including claims of shortages of highly skilled workers, do not stand up to careful scrutiny and analysis. Employers seeking work-based admission of alien workers should be required to prove extensive recruiting efforts and required to provide serious education and training efforts. We believe the category of 'executives and managers' should be strictly limited to top executives and should not include most 'managers.' Since this is for permanent residence, a higher standard should apply than for temporary visas. Also we deplore the selling of citizenship to those who can prove they have \$1 million to invest in the United States.'"

From the IEEE-USA Impact, Volume 19, Number 6, September 1995: "From Resume-Referral Service Now Available - IEEE-USA's Employment Assistance Committee has arranged an agreement with Resume-Link, Inc., a national resume referral service. Our members can place their resumes free-of-charge on this national database used by employers to fill job openings.

To appear in the database, members must submit a resume information form, available through Resume-Link at 3960 I Brown Park Drive, P.O. Box 218, Hilliard, Ohio 43026; (614) 529-0429 (phone); and on the World Wide Web at <http://www.resume-link.com>. Resume material is posted within 48 hours of receipt. For more information, contact Bill Anderson in Washington. Bill can be contacted at IEEE-USA Office: (202) 785-0017, ext. 330 (phone); (202) 785-0835 (fax); or w.anderson@ieee.org (e-mail).

Also from The IEEE Frontline Report, September-October 1995, page 2: "For leads in contract engineering, check out the following publications:

Hot Flash
National Technical Employment Service
P.O. Box 217
Scottsboro, AL 35768
(205) 259-1828

Contract Engineers Weekly
P.O. Box 97000
Kirkland, WA 98088-9700
(206) 823-2222

Technical Employment News
12416 Haymeadow Dr.
Austin, TX 78750
(512) 250-9023

I will give more job information in the next issue of the Cincinnati Section IEEE Newsletter. If any Cincinnati Section IEEE members are seeking consulting work or are consultants are in need of special project needs, please phone me so this information can be put on the Newsletter.

William J. Lohner
PACE Chairman
8703 Indianwoods Drive
Cincinnati, Ohio, 45251
(513) 385-7268

THE INVENTION OF COLOR TELEVISION - PART 2

by R. J. Reiman, Historian

The introduction of color television using the CBS Field Sequential Color System had been a commercial failure in 1951, and the intervention of the Korean War, and prohibition on production of color television sets, let CBS gracefully withdraw.

The FCC withdrew its approval of the Field Sequential System and after further development and hearings, approved the National Television Committee's recommendation, based on RCA's Dot Sequential Color System, with commercial broadcasting authorized January 22, 1954.

The development of the tricolor tube and receiver, or kinescope, was necessary to implement the Dot Sequential System. According to George Brown of RCA, the development of the successful color kinescope in a six-month period was a triumph seldom equaled. The tube was based upon the shadow mask principle. Red, green, and blue phosphor dots are deposited in triads on the inside surface of the kinescope faceplate. The aperture or shadow mask, a perforated metal plate with one perforation for each triad, is mounted just behind each faceplate. A cluster of three electron guns located in the neck of the kinescope, are positioned so that beams converge at the mask. The beam from each gun impinges on the dot of a single color because of the slight off-axis angle at which it goes through each perforation.

The picture quality of the color tube prototypes was surprisingly good, but the manner of depositing the color dots, and their low brightness were early problems. The solution was to license the patent used by CBS, which in turn had developed it from an earlier RCA concept which they had rejected. Brightness and contrast ratio (ratio of highlights to shadows) was improved by advances in external circuitry. Further improvements were made by Zenith's development of a flat tension mask tube in 1986, and the trinitron by Sony which uses vertical strips rather than dot triads.

The first color television receivers had small screens, performed poorly, and had high prices. RCA's twelve-inch model CT100, in 1954, utilized phosphor dots deposited on an internal glass plate, and had marginal brightness, even though it cost \$1,000.00! The revised model was twenty-one inches with dots deposited on the inside of the face plate and was superior, but far short of today's models. The introduction of transistors resulted in reduction in size, power consumed and reliability. Integrated circuits, incorporating digital signaling processing gave further picture quality.

From 1954 to 1964, color television sales stagnated, and David Sarnoff, whose RCA Company was dominant, had high costs but small sales and revenue. In 1964, sales rose from one to nineteen million in 1985, and he gloried in the success and marvelous climax of his career.

**WELCOME TO NEW IEEE MEMBERS AND CURRENT
IEEE MEMBERS WHO HAVE MOVED INTO OUR SECTION!!**

The following individuals are new IEEE members in the Cincinnati Section:

Anne K. Abate	Brad Carman
Richard Childers	Lawence W. Menzer

The following IEEE members have moved into the Cincinnati Section:

Daniel M. Alley	Paul H. Hartman
Bruce Bonom	David C. High
Richard Childers	James E. Hopkins
Richard H. Ehlers	Joyce A. Lanning
Robert E. England	Lenore J. Scannapiego
Leonard B. Gardner	Andra L. Sewell
Uma Gummadavelli	Eric J. Zeek

Welcome to our Section!!!!

IEEE NEWS

NEW SURVEY SHOWS ELECTRICAL ENGINEERING SALARIES SLIGHTLY UP, UNEMPLOYMENT DOWN

WASHINGTON, May 8 -- Income for electrical, electronics and computer engineers increased 5.9% during the past two years, slightly outpacing the rate of inflation.

Those working in their primary technical specialty in 1995 had total incomes averaging \$71,900, according to a biennial salary survey of U.S. members conducted by IEEE-USA. Two years ago, average income was \$67,900. Between 1993 and 1995, the consumer price index rose 5.6%. Highest incomes were recorded in the Northeast; the lowest in the Midwest.

According to Robert S. Duggan, Jr., chairman of the IEEE-USA Survey Committee: "After the major economic disruptions of the past several years, the results of this survey should prove encouraging to the beleaguered engineering workforce. We find that the income pie is getting a bit larger, and there are also more slices to go around".

The 1995 IEEE U.S. Membership Salary and Fringe Benefit Survey, the 12th such poll of the Institute's U.S. members since 1972, provides the only comprehensive information about salaries and benefits in electrical engineering and related fields. The Institute is the world's largest technical professional society, with 320,000 members, including nearly a quarter-million within the United States.

The IEEE-USA survey shows more retired electrical engineers and fewer EEs working full time. Part-time employment registered a 4%, and retirement accounted for 15.4% of respondents. Nearly 70% were employed full time in their primary technical specialty, and another 7.5% were working full time outside their field. Among the remaining, 2.3% were involuntarily unemployed, down from a record high of 2.7% in 1993.

The poll provides extensive data regarding engineering income by industry sector. The highest median incomes were reported by engineers in communications (\$70,138), computers (\$69,929), and aerospace (\$69,500); while the lowest were reported in the automotive industry (\$62,000) and transportation (\$60,000). By job function, engineers in general management have the highest incomes, those in manufacturing and production the lowest.

A minority of respondents, 20.1%, are registered Professional Engineers. Another 13.3% qualify for Engineer in Training status. The most commonly held degrees are bachelor of science in electrical engineering or electrical and computer engineering.

Almost all (94.9%) respondents were men, and 88.2% identified themselves as non-Hispanic white. Asian-Americans represented the largest minority group at 7.6%.

The survey includes a regression-analysis formula -- analyzing more than 50 individual variables including technical specialty, industry and geographic location -- that individual engineers may use to predict their salary for particular positions.

During January and February, 1995, information was collected from a random sample of U.S. members of the IEEE by the Engineering Workforce Commission of the American Association of Engineering Societies. Employment status was determined as of Jan. 6. Nearly 6,000 members returned completed questionnaires - a

response rate of 28.1%, yielding results with a deviation from actual population proportions within plus or minus 2%, at a 95% confidence level.

Copies of the complete survey (Catalog No. UH0198-2) are available postpaid for \$79.95 to IEEE members and \$125.95 to non-members. Contact the IEEE Service Center, 445 Hoes Lane, Box 1331, Piscataway, NJ 08855-1331; or call 1-800-678-IEEE.

"INFORMATION HIGHWAYS AND BYWAYS" GIVES HISTORICAL VIEW OF COMMUNICATIONS REVOLUTION

PISCATAWAY, NJ, May 17, 1995 -- A new book from the IEEE Press titled "Information Highways and Byways" traces the history of communications technologies -- from the telegraph and telephone to fax machines and the Internet -- and examines how such inventions have driven cultural changes in the past and could affect the future.

According to author Irwin Lebow, the information superhighway is the buzzword of the '90s, but few really understand its impact on society, its humble beginning or its effect on our shrinking world. "The dominant historical trend has been the steady stream of inventions and technology," writes Lebow. "If we are dazzled by the new technology that has appeared in our lifetimes, just imagine how our nineteenth-century forebearers were affected by the telegraph, the telephone and the wireless. Not only did the new gadgets captivate the public, but their inventors became national heroes."

"Information Highways and Byways" uses anecdotes, historical recreations and non-technical explanations to illustrate communications' impact on our world during the past 150 years since Samuel Morse introduced the telegraph. Written for non-technical as well as technical readers, it should be of interest to students, teachers, managers, executives, engineers, historians or anyone with a curiosity about technology. The book lists for \$29.95 and is available to the IEEE members for \$25.00. It can be ordered by calling 1-800-678-IEEE.

A division of IEEE, the IEEE Press publishes a broad range of original books on electronics, computing and general interest engineering, including graduate textbooks, cutting-edge monographs, professional handbooks and practical guides to career issues. It publishes approximately 60 new books each year and has an active backlist exceeding 300 titles.

IEEE-USA SURVEY SHOWS ELECTRICAL ENGINEERS WOULD SAVE MORE WITH EXPANDED IRA'S

Washington, May 23, 1995 -- According to a survey conducted by the U.S. Activities division of IEEE (IEEE-USA), electrical engineers would increase their personal retirement-savings rates if Congress enacts pending savings-incentive legislation. The magazine questionnaire yielded nearly 150 responses last month on issues ranging from engineers' current savings patterns to their preferences on competing legislative proposals.

"The poll reveals an overwhelming consensus that engineers will do their part to rebuild the collapsing national savings rate -- if Congress gives them the tools," stated IEEE-USA Board Chair Joel B. Snyder. "Engineers are telling us that they're worried about retirement security, but they simply can't afford to increase their savings and their tax bite at the same time," he said.

The survey results come as Congress considers ways to encourage personal savings. The American Dream Restoration Act, passed by the House as part of the "Contract with America" Tax Relief Act, permits individuals to make taxable contributions of up to \$2,000 a year to new "American Dream Savings Accounts" (ADSA's)

irrespective of income or pension-plan participation. The distributions from these accounts would not be subject to additional tax or penalty if used for retirement, a first-time home, educational expenses or major medical costs. The Individual Retirement Account (IRA) Equity Act, also passed by the House, raises the dollar amount that a non-working spouse can contribute to a conventional tax-deductible IRA from \$250 to \$2,000.

Savings-incentive legislation faces higher hurdles in the Senate, where determination to lower the federal deficit has diminished enthusiasm for middle-class tax cuts. The Senate is expected to consider savings options this summer, including the Roth-Breaux Savings and Investment Incentive Act, which restores universal eligibility to make tax-deductible contributions to IRA's and establishes a non-deductible "IRA-Plus Account" similar to the ADSA.

Critics of the current proposals claim that tax incentives to use savings instruments would lead Americans merely to redistribute their investments, not actually increase their net savings. "Our survey data suggests that new savings incentives will result in more investment -- increased savings to ensure Americans' retirement security and more private capital to boost U.S. economic competitiveness," said James V. Leonard, chair of IEEE-USA's Engineering Employment Benefits Committee. "As members of the nation's second-largest profession -- and a major portion of its middle-class savers -- electrical engineers are a bellwether on this issue," he added.

Although 97% of survey respondents claimed they have begun saving money specifically for retirement, the overwhelming majority expressed concern about whether those resources would prove sufficient. Ninety-four percent indicated that they are "worried" about a retirement-savings shortfall; of these, nearly 40% reported that they are "very worried." At present, respondents rely most heavily on employer 401(k) plans -- with 82% claiming participation, followed by IRA's (50%) and other employer-sponsored pension plans (20%).

Survey participants were enthusiastic about pending savings-incentive based legislation. Ninety percent indicated they would invest in either or both of two proposed savings instruments; of these, 51% preferred the Roth-Breaux "Super IRA" vs. 49% for the ADSA. In addition, almost two-thirds replied that they would be more likely to invest in an IRA if they could withdraw or borrow their savings to help pay for a home, college expenses or major health-care costs -- as provided for by both bills.

The survey group was virtually united in its commitment to save more with additional tax incentives. Of those reporting they would participate in the new plans, nearly four of five said their contributions would constitute an increase in their overall level of retirement savings. Only 22% indicated they would merely shift their investments to gain the tax advantages.

Survey respondents identified economic factors, government policy and cultural values as the principle causes for decline in the U.S. personal-savings rate. Some commented that stagnating wages, changes in the cost of living, or corporate downsizing were eliminating disposable income that could be used for saving. "You can't save what does not exist," said one respondent. Others cited the increasing tax burden and policies which penalize saving -- such as taxing of interest and capital gains -- as significant disincentives. "Government deficit = inflation = higher taxes = nothing left," was one engineers terse equation. Another summarized a litany of frustrations: "Savings will only increase when it pays to save! The low interest rates, taxes, inflation, lost liquidity and the tiny amount of money left over after expenses explain why most traditional savings concepts do not help most engineers solve their long-term financial problems."

However, the greatest number of respondents singled out cultural values as key to the plummeting savings rate, including rampant consumerism, an "instant-gratification" lifestyle, the "culture of dependency," personal irresponsibility, exaggerated material expectations, and an "entitlement mentality." Wrote one respondent; "As a society, we now display indifference -- if not scorn -- for those who don't drive the latest cars, own the latest

gadgets and wear the newest fashions. Keeping up with societal expectations costs money -- money that should be put away for later use."

While few respondents offered solutions to deep and intangible cultural problems, many had specific suggestions for improvements in federal policy. Some proposed adjustments in the tax laws, such as eliminating taxes on interest and capital gains or indexing them for inflation, while others proposed wholesale changes in government programs -- including phasing out the Social Security system and replacing it with voluntary or mandatory private savings instruments. "The Social Security system should be transformed into a managed for profit company with mandatory paycheck contributions," wrote one engineer. Several respondents called for abolishing the federal income tax. Said one: "Eliminating income taxes and replacing them with a national sales tax would strongly encourage savings."

ANNOUNCING EDUCATIONAL AND CAREER PLANNING ACTIVITIES FROM THE IEEE

From Jerry Aukland, Chair, Continuing Education Committee, and

Dan Jackson, Chair, Professional Development Committee

Would you like to know how to keep up to date technically ? Do you want to plan your professional or technical career path ? The Educational Activities Board (EAB) of the IEEE has developed or is planning several projects that are responsive to your educational and professional needs.

In May 1994, the EAB led Industry 2000, a workshop where industry, university and government leaders joined IEEE to address members' needs for lifelong learning. EAB is planning a similar workshop for April 1996, prior to the Annual Careers Conference sponsored by the United States Activities Board. At this event, leaders from industry and universities will be invited to share "best practices" in current skills assessment techniques.

The EAB also is developing the Career Asset Manager (CAM) to help IEEE members appraise their assets, set career goals and lay out a plan for reaching those goals. Engineers will be able to use CAM to assess their education and experience and determine what knowledge may be required to further their careers. CAM will provide guidelines for a continuing education curriculum, including technical and non-technical skills, and will keep track of career milestones. Eventually, CAM will offer members an electronic road map -- where to start, where to go, and how to get there.

Educational Activities (EA) currently has several projects to help IEEE members participate in continuing education activities. EA sponsors an educational registry to track Continuing Education Units earned, and is reviewing study materials currently available for the Professional Engineering exam.

EA also publishes books and self-study courses to help engineers with lifelong learning. Self-study courses offer graduate-level applied technical education. Career opportunity guides are being planned to help students select a suitable career path. And the Engineers Guide to Business series offers inexpensive, easy-to-use information on non-technical subjects. This series, which is being expanded at the rate of four titles per year, includes Writing for Career Growth, Building Internal Team Partnerships, Presentations That Work, and Starting a High Tech Company. Future titles include Starting to Manage, Working in a Global Environment, Ethical Engineering, and Marketing for Engineers.

For further information on any of the above projects, please contact Barbara Coburn, Educational Activities Department, IEEE, 445 Hoes Lane, Piscataway, NJ 08855; (908) 562-5498.

IEEE EDUCATIONAL PROGRAMS ELIGIBLE FOR CONTINUING EDUCATION CREDITS

PISCATAWAY, NJ, August 1, 1995 -- IEEE Societies, Sections and Chapters may now apply to offer Continuing Education Units (CEU's) for their short courses and conferences.

In an effort to promote and enhance the value of educational programs provided by the IEEE, the IEEE joined the International Association for Continuing Education and Training (IACET), an organization established to promote the legitimate use of the Continuing Education Unit. To offer CEU's for short courses, seminars, and conferences, IEEE educational entities must follow IACET guidelines.

The CEU can lend further credence to the quality of IEEE educational offerings. Given the current trend of state-mandated continuing education for licensed professionals, the CEU, which equals 10 Professional Development Hours (PDH), provides a strong incentive for those wishing to document professional development activities.

To reduce the burden of record maintenance on Societies, Sections, and Chapters, Educational Activities will maintain a central registry. For a small fee, Educational Activities will maintain student records, issue transcripts and provide certificates for completed courses.

For additional information on obtaining IACET guidelines and applying to offer CEU's, please contact Peter Wiesner, Ed.D., or Gale Langseth, IEEE Educational Activities, 445 Hoes Lane, Piscataway, NJ 08855; (908) 562-5500; (908) 981-1686 (fax); p.wiesner@ieee.org or g.langseth@ieee.org.

IEEE 1996 CINCINNATI SECTION BALLOT

Election of Member-At-Large for Term

Beginning 1/1/96 and Ending 12/31/97

MEMBER-AT-LARGE

_____ Eric Wright

_____ Write-In _____

Eric Wright is currently employed at Xetron Corporation (a subsidiary of Westinghouse Electric Corporation) in Cincinnati, Ohio. He is a Product Manager and supervises R&D and production programs in the New Technology business area for the Defense Business Unit. He was previously employed at Harris Corporation in Melbourne, Florida as well as Cincinnati Electronics. He holds both a BSEE and an MSEE from the University of Cincinnati. His specialty is digital design with an emphasis on ASIC's. He has held the positions of Chairman, Vice Chairman, Secretary and Member of the Executive Committee in the Cincinnati Section of IEEE in previous years. Eric was nominated by the Nominating Committee to replace Bill Lohner, whose term as Member-At-Large expires on 12/31/95.

Signature

IEEE Membership Number

Please return this ballot by:

JANUARY 1, 1996

Also, be sure to sign the ballot in the space provided and indicate your IEEE Membership Number.

Mail the complete ballot to:

Mark Reineck
1150 Forrest Run Road
Batavia, Ohio 45103

**SCHEDULE FOR THE
1996 IEEE CINCINNATI SECTION &
EXECUTIVE COMMITTEE MEETINGS**

MONTH	SECTION	EXECUTIVE
JAN	25	18
FEB	22	X
MAR	22	X
APR	25	18
MAY	23	X
JUNE	6	X
JULY	X	X
AUG	X	22
SEP	26	X
OCT	24	17
NOV	X	X
DEC	7	X

Dee Scott (call for meeting reservations)	385-9446
Steve Olenick - Chairman	573-6555 (Office), Solenick@cinele.com (E-mail), 573-6514 (Fax)
Bob Haas - Vice Chairman	231-2584
Orest Melnyk - Treasurer	397-1242
Mark Reineck - Secretary	753-6290
Ron Harbaugh - Member-At-Large	352-6202
Jack Beckmeyer - Arrangements Chairman	353-2643, 353-2671 (Fax)
Bill Lohner - PACE Chairman	385-7268
Bob Morrison - Editor	287-3697 (Office), 287-3698 (Fax)

NOV/DEC 1995

IEEE CINCINNATI SECTION NEWSLETTER



**The Institute of Electrical and
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C/O Dee Scott
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Please deliver promptly